west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

March 24, 2016

EQT PRODUCTION COMPANY
120 PROFESSIONAL PLACE
BRIDGEPORT, WV 26330

Re: Permit Modification Approval for API Number 9502256, Well #: 514464

Extend Lateral, Sub-surface Easement

Oil and Gas Operator:
The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

For

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

EQT

January 12, 2016

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Modification of 47-095-02257, 02264, 02255, 02220, 02256 MOD

Dear Mr. Smith,

Enclosed is an updated WW-6B, schematics, WW-6A1, rec plan, Site Safety plan and mylar plat. EQT would like to revise the length of the lateral. The top hole has not changed. The Safety plan is being updated to include changes to the cement. All has been signed by the inspector.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

Vicki Roark
Permitting Supervisor-WV

Enc.

Received
Office of Oil & Gas
JAN 14 2016

WW - 6B
(4/15)

4709502256 MOD

API NO. 47 - 095 - 02256
OPERATOR WELL NO. 514464
Well Pad Name: SHR60

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company | 306686 Operator ID | 095 County | 5 District | 607 Quadrangle

2) Operator's Well Number: 514464 Well Pad Name SHR60

3) Farm Name/Surface Owner : Vivian J Wells et al Public Road Access: 60/2

4) Elevation, current ground: 1,018.0 Elevation, proposed post-construction: 1,011.0

5) Well Type: (a) Gas • Oil _____ Underground Storage _____

Other _____

(b) If Gas: Shallow • Deep _____

Horizontal •

DMH
1-11-16

6) Existing Pad? Yes or No: yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Target formation is Marcellus at a depth of 6596 with the anticipated thickness to be 52 feet and anticipated target pressure of 2747 PSI

Top of Marcellus: 6571

8) Proposed Total Vertical Depth: 6596

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12556

11) Proposed Horizontal Leg Length: 5231

12) Approximate Fresh Water Strata Depths: 83,133,570,906

13) Method to Determine Fresh Water Depth: By offset wells

14) Approximate Saltwater Depths: 1198, 1865

15) Approximate Coal Seam Depths: 19, 420, 686, 875, 1315

16) Approximate Depth to Possible Void (coal mine, karst, other): None reported

17) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No _____

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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JAN 14 2016

WW - 6B
(4/15)

4709502256 Mod

API NO. 47 - 095 - 02256
OPERATOR WELL NO. 514464
Well Pad Name: SHR60

CASING AND TUBING PROGRAM

18)

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill- up (Cu.Ft.)
Conductor	20	New	A-500	78.6	60	60	90 C.T.S.
Fresh Water	13 3/8	New	J-55	54.5	1,006	1,006	936 C.T.S.
Coal	–	–	–	–	–	–	
Intermediate	9 5/8	New	A-500	40	2,788	2,788	1,088 C.T.S.
Production	5 1/2	New	P-110	20	12,556	12,556	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run, if run will be set 100' less than TD
Liners							

DMH 1-11-16

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	26	0.375	-	18	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,730	2,184	* See Note 2	1.19
Coal							
Intermediate	9 5/8	12 3/8	0.395	3,950	3,160	* See Note 2	1.19
Production	5 1/2	8 1/2	0.361	12,640	10,112	-	1.07/1.86
Tubing							
Liners							

Packers

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

Note 1: EQT plans to bring the TOC on the production casing cement job 500' above the top producing zone.

Note 2: Reference Variance 2014-17. (Attached)

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Office of Oil & Gas
JAN 14 2016

WW - 6B
(10/14)

4709502256 MOD

API NO. 47 - 095 - 02256
OPERATOR WELL NO. 514464
Well Pad Name: SHR60

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and complete a new horizontal well in the Marcellus formation.

Drill the vertical to an approximate depth of 5195'.

Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals (including 15% Hydrochloric acid, gelling agent, gel breaker, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to average approximately 8500 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

21) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): no additional

22) Area to be disturbed for well pad only, less access road (acres): no additional

23) Describe centralizer placement for each casing string.

- Surface: Bow spring centralizers – One at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers– One cent at the shoe and one spaced every 500'.
- Production: One spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type.

Surface (Type 1 Cement): 0-3% Calcium Chloride Used to speed the setting of cement slurries. 0.25% flake. Loss Circulation Material (LCM) is used to combat the loss of the cement slurry to a thief zone.

Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Salt is used in shallow, low temperature formations to speed the setting of cement slurries. 0.25% flake. Loss Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.

Production: Draft 1-11-16

Lead (Type H Cement): 0.2% CD-20 (dispersant makes cement easier to mix). .15% SuperFL-300 (fluid loss/lengthens thickening time) .15% SEC-10 (fluid loss) 50:50 POZ (extender)

Tail (Type H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time. .3% Super FL-200 (fluid loss) .2% SEC-10 (Fluid loss). .2% SuperFL-350 (fluid loss) Reduces amount of water lost to formation. 60 % Calcuim Carbonate. Acid solubility.

25) Proposed borehole conditioning procedures.

Surface: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.

Intermediate: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. If foam drilling, to enhance hole cleaning use a soap sweep or increase injection rate & foam concentration.

Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

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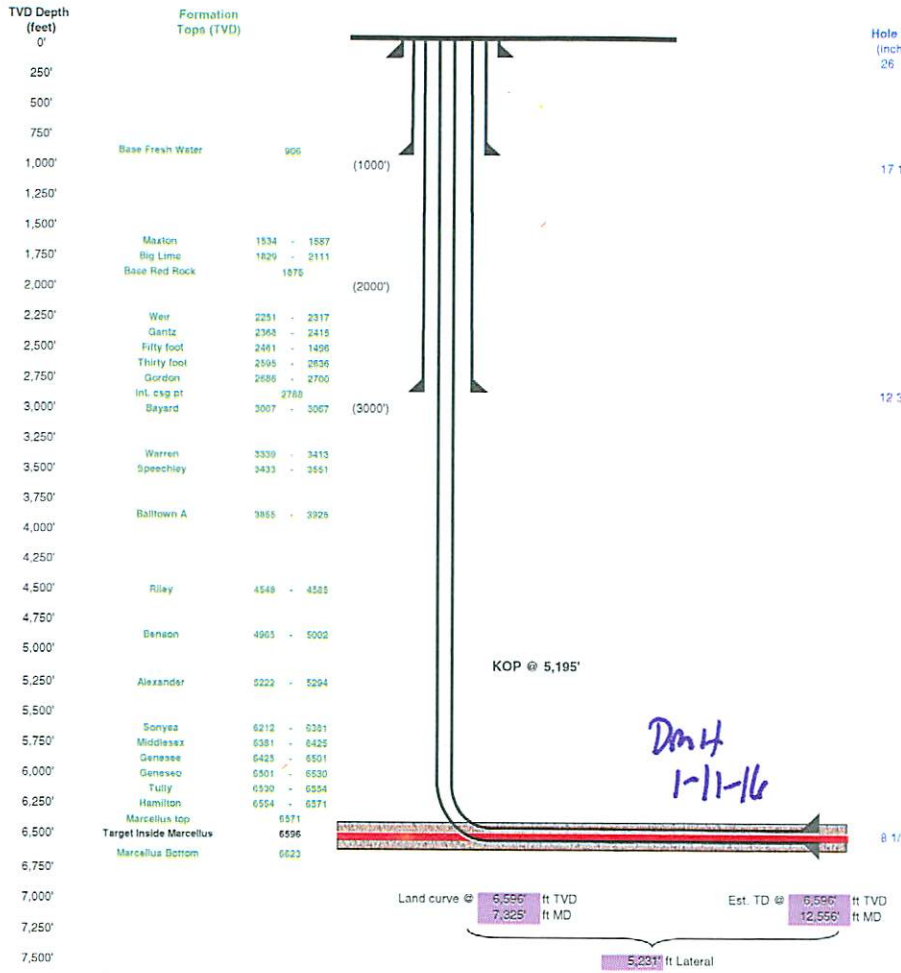
JAN 14 2016

*Note: Attach additional sheets as needed.

Well 514464 (SHR60H5)
EQT Production
Shirley
Tyler West Virgina

Pad Name

Azimuth 157
Vertical Section 5626



Hole Size (inches)	Type	Size (inches)	Wt (ppf)	Grade	Casing Wall Thickness	Depth (feet)	Top of Cement	Method
26	Conductor	20	78.6	A-500	0.312	60	Surface	Displacement
17 1/2	Surface	13 3/8	54.5	J-55	0.38	1006	Surface	Displacement
12 3/8	Intermediate	9 5/8	40	A-500	0.395	2788	Surface	Displacement
8 1/2	Production Casing	5 1/2	20	P-110	0.361	12556	500' above top Producing Zone	Displacement

DMH 1-11-16

Proposed Well Work:
Drill and complete a new horizontal well in the Marcellus formation.
Drill the vertical to an approximate depth of 5195'.
Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

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Office of Oil & Gas
DEC 14 2016

4709502256 Map

4709502256 Mod

west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

March 18, 2014

Nabors Completion & Production Services Company
1380 Route 286 Hwy E #121
Indiana PA 15701

Re: Cement Variance Request

Dear Sir or Madam,

This agency is approving a variance request for the cement blend listed below to be used on surface and coal protection strings for the drilling of oil and gas wells in the state of West Virginia. The variance cannot be used without requesting its use on a permit application and approval by this agency:

- Type 1 (2% Calcium Chloride-Accelerator, 0.25% Super Flake-Lost Circulation, 5.2% Water, 94% Type "1" Cement)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson by GCS

James Peterson
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

Received
Office of Oil & Gas
JAN 14 2016

4709502256 MOD

west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA

IN THE MATTER OF A VARIANCE FROM	)	**ORDER NO. 2014 - 17**
REGULATION 35 CSR § 4-11.4/11.5/14.1	)	
AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE	)	
THE OPERATIONAL	)	
REGULATIONS OF CEMENTING OIL	)	
AND GAS WELLS	)	

REPORT OF THE OFFICE

Nabors Completion & Production Services Co. requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

FINDINGS OF FACT

1.) Nabors Completion & Production Services Co. proposes the following cement blend:

- 2% Calcium Chloride (Accelerator)
- 0.25 % Super Flake (Lost Circulation)
- 94% Type "1" Cement
- 5.20 % Water

2.) Laboratory testing results indicate that the blend listed in Fact No.1 will achieve a 500 psi compressive strength within 6 hours and a 2,435 psi compressive strength within 24 hours.

Received
Office of Oil & Gas
JAN 14 2016

CONCLUSIONS OF LAW

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

ORDER

It is ordered that Nabors Completion & Production Services Co. may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be **8** hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after **8** hours the cement is not set up, additional time will be required. Nabors Completion & Production Services Co. shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 18th day of March, 2014.

IN THE NAME OF THE STATE OF WEST VIRGINIA

OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OF THE STATE OF WEST VIRGINIA

James Martin, Chief
Office of Oil and Gas

Received
Office of Oil & Gas
JAN 14 2016

4709502256 Mod

WW-9
(2/15)

API No. 47 - 095 - 0
Operator's Well No. 514464

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
Fluids/Cuttings Disposal & Reclamation Plan

Operator Name EQT Production Company OP Code 306686

Watershed (HUC10) Morrison Run of McElroy Creek Quadrangle Shirley

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes x No ____

Will a pit be used ? Yes: X No: ____

If so please describe anticipated pit waste: flowback water & residual solids

Will a synthetic liner be used in the pit? Yes X No ____ If so, what ml.? 60

Proposed Disposal Method For Treated Pit Wastes:

____ Land Application
▪ Underground Injection (UIC Permit Number 0014, 8462, 4037)
▪ Reuse (at API Number Various)
▪ Off Site Disposal (Supply form WW-9 for disposal location)
____ Other (Explain ____)

Will closed loop system be used ? Yes, The closed loop system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.

Air is used to drill the top-hole sections of the wellbore (surface, intermediate, and pilot). Water based mud may be necessary depending on hole conditions to stabilize and drill the intermediate section. The pilot hole, curve, and lateral sections will be drilled with either air, water based mud, or oil based mud.

DMH 1-11-16

– If oil based, what type? Synthetic, petroleum, etc Synthetic mud

Additives to be used in drilling medium? Air - biodegradable oil lubricant , detergent, defoaming, water. Water based mud – Barite, viscosifer, alkalinity control, lime, filtration control, deflocculates, biodegradable oil lubricant , defoaming, walnut shell, salt, x-cide, carbonates. Oil based mud – synthetic base oil, emulsifier, salt, lime, viscosifer, alkalinity control, filtration control, deflocculates, biodegradable oil lubricant , defoaming, carbonates.

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

- If left in pit and plan to solidify what medium will be used? (Cement, Line, sawdust) n/a
- Landfill or offsite name/permit number? See Attached List

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature ____
Company Official (Typed Name) Victoria J. Roark
Company Official Title Permitting Supervisor

Subscribed and sworn before me this 17 day of December , 20 15

Rebecca L Wanstreet Notary Public

My commission expires 4-7-20

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
REBECCA L. WANSTREET
EQT PRODUCTION COMPANY
PO BOX 280
BRIDGEPORT, WV 26330
My commission expires April 07, 2020

Received
Office of Oil & Gas
JAN 14 2016

4709502256 MOP

Form WW-9

Operator's Well No. 514464

Proposed Revegetation Treatment: Acres Disturbed no additional Prevegetation pH 6.3

Lime 3 Tons/acre or to correct to pH 6.5

Fertilize type Granular 10-20-20

Fertilizer Amount 1/3 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

Attach:
Drawing(s) of road, location,pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments:

Title: Oil + Gas Inspector Date: 1-11-16

Field Reviewed? (✓) Yes ( ) No

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Office of Oil & Gas
JAN 14 2016

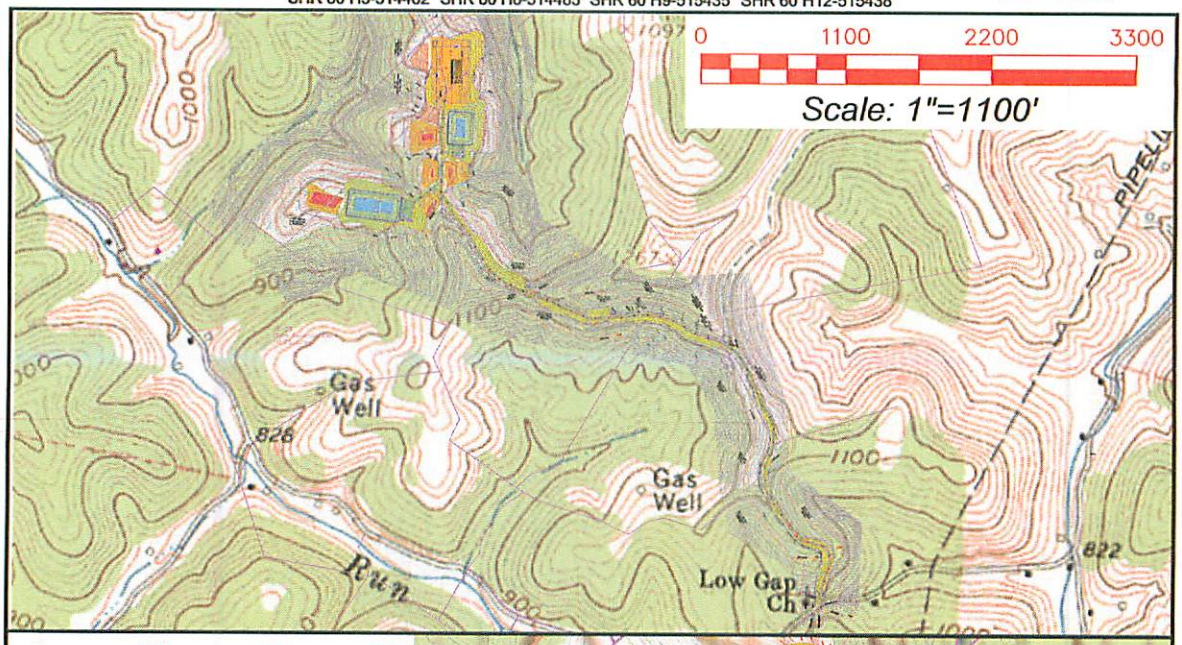
WW-9

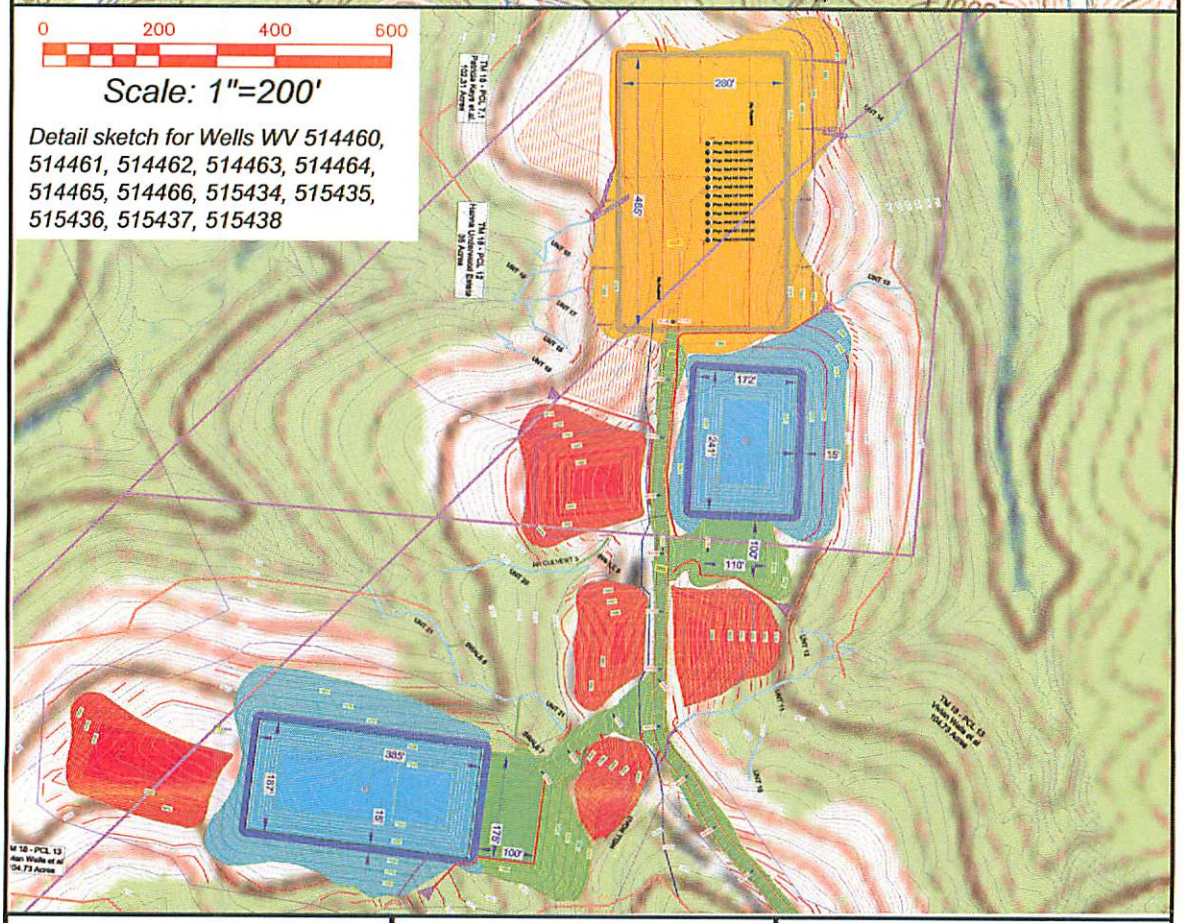
SHR 60 H1-514460 SHR 60 H4-514463 SHR 60 H7-514466 SHR 60 H10-515436
SHR 60 H2-514461 SHR 60 H5-514464 SHR 60 H8-515434 SHR 60 H11-515437
SHR 60 H3-514462 SHR 60 H6-514465 SHR 60 H9-515435 SHR 60 H12-515438

PAGE 1 OF 1

4709502256

MOD





Shirley 7.5' USGS QUADRANGLE		Proposed Disturbance Area	
Projected culvert inventory. (for bid purposes only)		Well Site Location	See Site Plan
15" minimum diameter culverts	See Site Plan	Proposed Access Road	See Site Plan
24" minimum diameter culverts	See Site Plan	Approximate Total Disturbance	See Site Plan

DRAWN BY: Dale Tomlin PS	DATE: October 24, 2014	FILE NO. 208-13	DRAWING FILE NO. ACAD-208-13-Rec Plan

Note: SEE SITE PLAN OF SHR 60 FOR COMPLETE GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.

DMH
1-11-16

Received
Office of Oil & Gas
JAN 14 2016

SURVEYING AND MAPPING SERVICES PERFORMED BY:

ALLEGHENY SURVEYS, INC.

1-800-482-8606

Birch River Office
Phone: (304) 649-8606
Fax: (304) 649-8608

237 Birch River Road
P.O. Box 438
Birch River, WV 26610

4709502256

MOD

EQT

Where energy meets innovation.

Site Specific Safety Plan

EQT SHR 60 Pad

Shirley
Tyler County, WV

For Wells:

514460 514461 514462 514463 514464 514465 514466

Date Prepared: October 24, 2014

EQT Production

Permitting Supervisor
Title

1/7/16
Date

Date Reviewed: December 7, 2015

WV Oil and Gas Inspector

Oil + Gas Inspector
Title

1-11-16
Date

Received
Office of Oil & Gas
JAN 14 2016

SHR 60
WV 514464
EQT Production Company

5526'

LATITUDE 39 - 25 - 00

LONGITUDE 80 - 47 - 30

8038'

GRID NORTH

SHR 60

H1, 514460
H2, 514461
H3, 514462
H4, 514463
H5, 514464
H6, 514465
H7, 514466
H8, 515434
H9, 515435
H10, 515436
H11, 515437
H12, 515438

Notes:
WV 514464 coordinates are
NAD 27 N: 328,522.18 E: 1,629,439.25
NAD 27 Lat: 39.394563 Long: -80.811235
NAD 83 UTM N: 4,360,589.14 E: 516,269.20
WV 514464 Landing Point coordinates are
NAD 27 N: 327,845.03 E: 1,628,611.33
NAD 27 Lat: 39.392671 Long: -80.814129
NAD 83 UTM N: 4,360,378.63 E: 516,020.41
WV 514464 Bottom Hole coordinates are
NAD 27 N: 323,029.38 E: 1,630,655.45
NAD 27 Lat: 39.379532 Long: -80.806649
NAD 83 UTM N: 4,358,921.93 E: 516,667.64
West Virginia Coordinate system of 1927 (North Zone) based upon Differential GPS Measurements.
Plat orientation, corner and well ties are based upon the grid north meridian.
Well location references are based upon the grid north meridian.
UTM coordinates are NAD83, Zone 17, Meters.

Lease No.	Acres	Owner
126164	113	Stephen Seckman, et. al.
126167	43	James D. Spencer, et. al.
126124	60	Donald Bible, et. al.
126211	145	John A. Dillon, et al.

Lease No. 126101
Lease No. 126158
Lease No. 126212
Lease No. 125951
Lease No. 126164
Lease No. 126167
Lease No. 126161
Lease No. 126124
Lease No. 126130
Lease No. 126146
Lease No. 126216
Lease No. 126211
Lease No. 126131
Lease No. 126194
Lease No. 126192
Lease No. 126134
Lease No. 190034
Lease No. 126191
Lease No. 126156
Lease No. 126213
Lease No. 126268
Lease No. 126190
Lease No. 126187
Lease No. 126221

N 28°58'13" W 318.73'
S 41°05'29" E 3771.38'
S 50°43'14" W 1069.57'
S 04°31'00" E 1684.76'
S 23° E 5231.53'
500' 500'
18" CO
WV 514464 Landing Point
WV 514464 Bottom Hole
WO Fence corner

Jefferson Run
Morrison Run
Pratt Run

SHR 60 H5
WV 514464
2500'
Scale 1" = 2000'

Well References
5/8" Rebar found
5/8" Rebar set
AZ 324°52'36" 267.57'
AZ 334°03'49" 157.99'
SHR 60 H5
WV 514464

Proposed Gas Well
Located Corner, as noted
Surface Tract Lines
Reference Line
Lease Boundary
Creek or Drain
WV County Route
WV State Route

( ) Denotes Location of Well on United States Topographic Maps

1" = 200'

ALLEGHENY SURVEYS, INC.

I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.

Ben R. Singleton
P.S. 2092

Ben R. Singleton
LICENSED
NO. 2092
STATE OF
WEST VIRGINIA
PROFESSIONAL SURVEYOR

SEAL

FILE NO: 208-13
DRAWING NO: 208-13 SHR 60 H5
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: January 5 20 16
OPERATOR'S WELL NO.: 514464
API WELL NO
47 - 95 - 02256H6A
STATE COUNTY PERMIT

WELL TYPE: ☐ OIL ☒ GAS ☐ LIQUID INJECTION ☐ WASTE DISPOSAL
(IF GAS) PRODUCTION : ☐ STORAGE ☐ DEEP ☒ SHALLOW
LOCATION: ELEVATION: Ground 1,018' Proposed 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
DISTRICT: McElroy COUNTY: Tyler
SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38
ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240
PROPOSED WORK: ☒ DRILL ☐ CONVERT ☐ DRILL DEEPER ☒ FRACTURE OR STIMULATE ☐ PLUG OFF OLD FORMATION
☐ PERFORATE NEW FORMATION ☐ OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
☐ PLUG AND ABANDON ☐ CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: TVD 6,596'

WELL OPERATOR: EQT Production Company
ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330

DESIGNATED AGENT: Rex C. Ray
ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330

095-02256
MOD

WW-6A1
(5/13)

Operator's Well No. 514464

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	
126101	**George Birklein, et al (current royalty owner)**		**Min 1/8 pd**		
	WM. Blaine Underwood Et ux et al (original lessor)	Equitable Gas Co.		DB186/86	
	Equitable Gas Co.	Equitrans, Inc.		DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	
	Equitrans, L.P.	EQT Production Company		OG420/10	Tyler Co.
5-18-7.1	Brenda J. Ashley, et al	EQT Production Company	N/A	508/181	Subsurface Agreement Attached
5-18-7.1	Patricia A. Keys	EQT Production Company	N/A	514/375	Subsurface Agreement Attached
126164	**Stephen Seckman et al (current royalty owner)**		**Min 1/8 pd**		
	Retha Seckman, et al(original lessor)	Equitable Gas Co.		DB192/351	
	Equitable Gas Co.	Equitrans, Inc.		DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777	
	Equitrans, LP	EQT Production Company		DB396/640	Tyler
126167	**James D. Spencer et al (current royalty owner)**		**Min 1/8 pd**		
	Savannah Pratt, et al (original lessor)	Equitable Gas Co.		DB192/425	
	Equitable Gas Co.	Equitrans, Inc.		DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	
126124	**Donald Bible et al (current royalty owner)**		**Min 1/8 pd**		
	Clyde Stewart, et ux (original lessor)	Equitable Gas Co.		LB191/165	
	Equitable Gas Co.	Equitrans, Inc.		DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	Tyler

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126211	John A. Dillon et al (current royalty owner)	Min 1/8 pd		
	Mary E. Underwood, et vir (original lessor)	Hope Natural Gas Co.	DB70/477	
	Hope Natural Gas Co.	Consolidated Gas Supply Corp.	DB169/26	
	Consolidated Gas Supply Corp.	Consolidated Gas Transmission Corp.	DB249/287	
	Consolidated Gas Transmission Corp.	CNG Development Co.	DB253/57	
	CNG Development Co.	Dominion Appalachian Development, Inc.	DB337/340	
	Dominion Appalachian Development, Inc.	Consol Gas Appalachian Development, LLC	CB9/131	name change
	Consol Gas Appalachian Development, LLC	CNX Gas Co., LLC	CB9/206	name change
	CNX Gas Co., LLC	EQT Production Co.	DB479/55	
	CNX Gas Co., LLC/Noble Energy, Inc	EQT Production Co.	AB505/222	

Upon information and belief, Operator's lease and/or other real property rights permit it to conduct drilling operations for the subject well in the location shown on the plat, including under any public roads that the well lateral crosses.

Acknowledgement of Possible Permitting/Approval In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: EQT Production Company
By:
Its: Permitting Supervisor

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EQT Production Company
2400 Zenith Ridge Rd.
Suite 200
Canonsburg, PA 15317
www.eqt.com

Todd Klaner
Manager, Permitting
tklaner@eqt.com

Where energy meets innovation.

January 12, 2016

WV DEP Reviewer

RE: EQT Production Company
PAD ID – SHR60
Well# - 514464
Tyler County

Dear Reviewer,

This well indicated by this permit application contains a Subsurface Easement Agreement for non-productive portions of the well bore. Attached is a Memorandum of Subsurface Use Agreement which gives EQT the right to drill below the surface of the tracts 18-7.1 shown on the well plat.

EQT Production understands that the WVDEP will issue the permit in the normal process subject to the completeness of the requirements of the Office of Oil and Gas and does not take a position with regards to the property rights under this agreement.

EQT Production agrees that the WVDEP's issuance of the permit is in no way an affirmance or validation of EQT Production's claimed rights.

Regards,

Todd Klaner
Manager, Permitting
EQT Production Company

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Teresea R Hamilton
TYLER County 01:21:34 PM
Instrument No 114424
Date Recorded 11/05/2015
Document Type AGR
Pages Recorded 2
Book-Page 508-181
Recording Fee $5.00
Additional $6.00

MEMORANDUM OF
SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT

LIS PROFESSIONAL PLAZA PO BOX 280
BRIDGEPORT, WV 26330-0280

1. NAME AND ADDRESS OF GRANTOR:

   Brenda J. Ashley and Stephen D. Ashley
   1048 Middle Island Road
   Middlebourne, WV 26149

2. NAME AND ADDRESS OF GRANTEE:

   EQT Production Company
   625 Liberty Avenue
   Suite 1700
   Pittsburgh, PA 15222

3. SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT REFERENCE: A SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT dated the 5th day of October, 2015, was entered into for good and valuable consideration by and between Brenda J. Ashley and Stephen D. Ashley, her husband, ("Grantor", whether one or more) and EQT Production Company ("Grantee").

4. DESCRIPTION OF PREMISES: That certain tract or parcel of land containing 102.31 acres, more or less, located on the waters of Jefferson Run in Tyler County, West Virginia, being the same lands conveyed to Grantor by Deed dated the 15th day of October, 1998, of record in the Office of the Clerk of the County Commission of Tyler County, West Virginia in Deed Book 326, at Page 372, ("the Property").

5. TERM: The SUBSURFACE RIGHT-OF-WAY AND EASEMENT shall run with the land and shall remain in full force and effect until released and relinquished by the Grantee back to the Grantor, in writing.

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IN WITNESS WHEREOF, the parties have signed their names hereto as of the date of the Agreement referenced in Section 3 above.

GRANTOR:

Brenda J. Ashley

Brenda J. Ashley

Stephen D. Ashley

Stephen D. Ashley

GRANTEE:
EQT Production Company

By: John W. Damato
Its: Attorney in fact

STATE OF WEST VIRGINIA;

COUNTY OF TYLER :

I, John Knopp, a Notary Public, in and for said State and County, do hereby certify that Brenda J. Ashley and Stephen D. Ashley, personally known to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be their free act and deeds for uses and purposes therein set forth.

Given under my hand this 5th day of October, 2015.

My Commission expires: July 25, 2021.

OFFICIAL SEAL
Notary Public, State of West Virginia
JOHN L KNOPP
Box 434 Station Camp Road
Leroy, WV 25252
My commission expires July 25, 2021

Notary Public

STATE OF WEST VIRGINIA :

COUNTY OF HARRISON :

I, Tina Maxwell, a Notary Public, in and for said State and County, do hereby certify that John W. Damato, personally known to be the same person whose name is subscribed to the foregoing instrument and the Attorney in fact of EQT Production Company, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be his free act and deed for uses and purposes therein set forth on behalf of said company.

Given under my hand this 12th day of October, 2015.

My Commission expires: August 29, 2019

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
TINA MAXWELL
EQT PRODUCTION COMPANY
115 PROFESSIONAL PLACE
BRIDGEPORT, WV 26330
My commission expires August 29, 2019

Notary Public

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This instrument was prepared by EQT Production Company, 1710 Pennsylvania Avenue, Charleston, WV 25302

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MEMORANDUM OF
SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT

1. **NAME AND ADDRESS OF GRANTOR:**

   Patricia A. Keys
   536 Briarcliff CT
   New Martinsville, WV 26155

2. **NAME AND ADDRESS OF GRANTEE:**

   EQT Production Company
   625 Liberty Avenue
   Suite 1700
   Pittsburgh, PA 15222

3. **SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT REFERENCE:** A SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT dated the 29th day of September, 2015, was entered into for good and valuable consideration by and between Patricia A. Keys, a single woman ("Grantor", whether one or more) and EQT Production Company ("Grantee").

4. **DESCRIPTION OF PREMISES:** That certain tract or parcel of land containing 102.31 acres, more or less, located on the waters of Jefferson Run in Tyler County, West Virginia, being the same lands conveyed to Grantor by Deed dated the 15th day of October, 1998, of record in the Office of the Clerk of the County Commission of Tyler County, West Virginia in Deed Book 326, at Page 372, ("the Property").

5. **TERM:** The SUBSURFACE RIGHT-OF-WAY AND EASEMENT shall run with the land and shall remain in full force and effect until released and relinquished by the Grantee back to the Grantor, in writing.

(REMAINDER OF PAGE LEFT BLANK INTENTIONALLY)

Office of Oil
JAN 14 2016

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IN WITNESS WHEREOF, the parties have signed their names hereto as of the date of the Agreement referenced in Section 3 above.

GRANTOR:

Patricia A. Keys
Patricia A. Keys

GRANTEE:
EQT Production Company

MW
By: John W. Damato
Its: Attorney in fact

STATE OF WEST VIRGINIA:

COUNTY OF WETZEL:

I, John Knopp, a Notary Public, in and for said State and County, do hereby certify that Patricia A. Keys, a single woman, personally known to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be their free act and deeds for uses and purposes therein set forth.

Given under my hand this 29th day of September, 2015.

My Commission expires: July 25, 2021

OFFICIAL SEAL
Notary Public, State of West Virginia
JOHN L KNOPP
Box 434 Station Camp Road
Leroy, WV 25252
My commission expires July 25, 2021

Notary Public

STATE OF WEST VIRGINIA :

COUNTY OF HARRISON :

I, Tina Maxwell, a Notary Public, in and for said State and County, do hereby certify that John W. Damato, personally known to be the same person whose name is subscribed to the foregoing instrument and the Attorney in fact of EQT Production Company, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be his free act and deed for uses and purposes therein set forth on behalf of said company.

Given under my hand this 1st day of October, 2015.

My Commission expires: August 29, 2019

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
TINA MAXWELL
EQT CORPORATION BUILDING
115 PROFESSIONAL PLACE
BRIDGEPORT, WV 26330
My Commission Expires August 29, 2019

Tina M Maxwell
Notary Public

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Office of Oil & Gas
JAN 14 2016

This instrument was prepared by EQT Production Company, 1710 Pennsylvania Avenue, Charleston, WV 25302